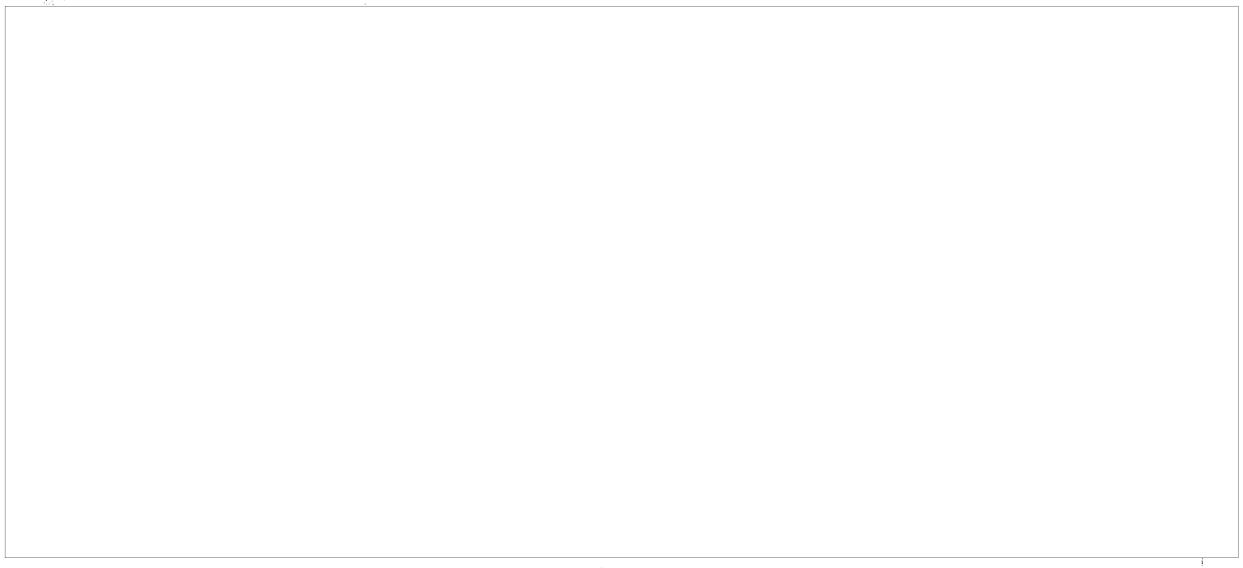

50X1-HUM

MEETING ON THE PRODUCTION OF SULFURIC ACID IN THE SOVIET ZONE

50X1-HUM

SECRET

SECRET

MEETING ON THE PRODUCTION OF SULFURIC ACID IN THE SOVIET ZONE

The meeting on sulfuric acid production was held on 10 Feb 1949 at Berlin, It was attended by numerous representatives of I.G. Farben (now called Chemisches Kombinat) of Bitterfeld, Wolfen, Leuna, Piesteritz, and Boehme-Fettchemie, and by representatives of the cellulose industry, the rayon industry, and university professors.

The meeting was opened by Prof. Dr. H.H. Franck of the Institute of Technology of Berlin. He brought to the attention of the meeting the fact that an Office of Technical Research was to be formed (housed in Room 351 of the Landtag Building in Berlin) which is to collect all current technical problems. The office will receive a large subsidy, and is also charged with the delivery of materials, chemicals, and measuring instruments.

Summary of the production of sulfuric acid:

1) Intensification of production

2) Production of sulfuric acid from waste products

3) Substitution of other acids for sulfuric acid.

A. Conference:

Sulfuric acid produced by catalytic process

Chairman: Prof. Dr. Joergensen (I.G. Farben, Wolfen).

Present production of 7 plants: 125,000 tons per year, distributed as follows:

I.G. Wolfen	24,000 tons
Acid-Corwig	33,000 tons
Heyden	16,800 tons
Magdeburg	11,500 tons
VVB Kunstfaser Chemnitz	30,000 tons
Mansfeld-Hettstedt	2,000 tons
Berlin Kali-Chemie	7,700 tons.

According to Order No. 192 of the Soviet Military Administration, the production of 125,000 tons per year is to be increased to 200,000 tons per year.

Raw materials: Elbingerode

Production: 5,000 tons of pyrites per month.

Imports: From Norway, and Bulgaria. The Bulgarian pyrites are of high

SECRET

quality, but the deliveries are irregular. Large quantities of gas purifier are imported from Denmark and Sweden.

The preliminary operations have met with great difficulties. The vertical shafts of the roasting ovens could not be delivered by the firm of Lurgi, and the material delivered by firms in Sachsen has not yet been tested.

Difficulty in handling of roast pyrites: They accumulate without being used and cannot be graded.

There is, for instance, a stock of 80,000 tons at Coswig. Since factory equipment from the Western Zone cannot be brought into the Soviet Zone, German specialists are at present building the equipment.

Dust Separation: (Monopoly of Lurgi)

Apparatus cannot be delivered. It is impossible at present to repair the machines suffering from damage to the drums; however, the Soviet Corporation of Jaeger at Leipzig is building similar models.

Catalysts: The production of vanadium, which is used as catalyst, will be started shortly at Wolfen. Planned production is 55 tons per day.

Vaporization tubes: The few machines available now, which have been imported, are out of order and cannot be replaced at present.

B. Conference: Chairman Dr. Bertsch, chief of section "Minerals Chemistry" of the German Economic Commission.

Production will be higher than the figures quoted by Dr. Joergensen, but cannot be definitely fixed, because of lack of records. It is not necessary to increase production, but only to guarantee production. It is essential to dispense with the services of the firm of Lurgi, which is not interested in dealing with the East Zone industry. Bertsch hopes that Wolfen will be able to make up for the loss of Lurgi's products.

C. Conference: Prof. Thilo, Berlin, and Prof. Simon, Dresden.

These two professors are of the opinion that new catalysts must be manufactured. There is, theoretically, a greater production of sulfur. The gas, which contains sulfur dioxide, and which is generally allowed to escape, should be recovered.

D, Production and recovery of catalysts; Chairman: Director Dr. Griessbach of I.G. Wolfen.

The problem of production and recovery of catalysts has been studied since 1945. The specialists working in this field are using the data of the Badische Anilin und Soda-Fabrik.

The stability of sulfur trioxide was discussed. Catalyst layers, 25 cm long, with mobile thermo-elements to determine the maximum temperatures of (pure sulfur dioxide diluted by air), were used in the laboratory at first. A catalyst consisting of 7% vanadium pentoxide was used. The filler was kaolin and kieselguhr, with 14% vanadium pentoxide, [illegible]. The yield is better

The optimum velocity of the sulfur dioxide stream is 30 cubic centimeters of sulfur dioxide per square centimeter per minute.

The [illegible] catalyst filler with a pH above 7 results in a good yield but lowered stability, while fillers with a pH below 7 increase the stability, but lower the yield.

It is therefore necessary to produce catalysts of uniform quality. An installation for this purpose will be built soon.

E, Conference: Dr. Thilo, Berlin: Increase of the pressure in the oxidation of sulfur dioxide.

Dr. Griessbach stated that high-pressure installations are very difficult to build.

F, Conference: Dr. Meyer of I.G. Bitterfeld: Conversion of roasted pyrites by the method of the Duisburger Kupferhuette;

The metals are converted into chlorides and the sulfur is oxidized at a temperature of 600°C.

15% acid is used as solvent. SECRET

All the metals, except the iron, are dissolved. Copper is eliminated by cementation, and Glauber salt by ~~refrigeration~~ cooling below 3°C. The iron, cobalt, and zinc are then removed by precipitation.

Since the Lurgi furnaces are impracticable, Dr. Meyer proposes the use of revolving sodium chloride furnaces.

The iron oxides which are obtained are of high quality.

Prices:

~~Minerals~~ Minerals containing 60% iron: 20 -25 DM per ton.

Zinc: 150 to 200 DM per ton.

Glauber salt: 60 DM per ton.

An effort will be made ~~It will be attempted~~ to convert 160,000 tons of pyrites per year by this method.

G. Dr. Griesbach: Possibility of reduction in the form of iron sludge.

Prof. Baukloh stated that this process had not succeeded at Krupp. In answer, Meyer stated that this system had been used by the Duisburg Kupferhuette, and that the blast furnaces had not given satisfactory results either. Baukloh suggested that revolving furnaces would be more advantageous. The zinc is distilled, the lead remains liquid, and the iron remains in the viscous state (kneading and reduction). This process can be used only when there is no copper present.

According to Bertsch of the German Economic Commission, qualitative and quantitative analysis of the ~~pyrites~~ roasted pyrites is necessary. A committee on sulfuric acid will be formed, which will determine the best process.

Treatment of liquid residues containing sulfates:

Dr. Hohnemann of Bitterfeld recommends the treatment of residues with an electrolytic process, using horizontal and vertical diaphragms and iron and mercury ~~electrodes~~ electrodes. Griesbach explained the details of the recovery process.

SECRET

1) By thermic process

2) Separation of the acid by sodium chloride

3) By fractional crystallization

4) Recovery in the presence of sodium aluminate.

The last process is very economical. The electrolysis takes place at low voltage. There is no corrosion.

Production of sulfuric acid by treatment of domestic sulfates:

Dr. Weissman of Wolfen considers the treatment of gypsum the best. The plant at Wolfen, dismantled by the Russians, should be rebuilt, because it could at once produce sulfuric acid without previous research.

Two revolving furnaces could produce 250 tons per day. The reconstruction of the plant would cost 9.5 million DM and would take one year.

Krupp-Gruson at Magdeburg could supply the complete concrete installation. All other apparatus, until now supplied by Lurgi, could be furnished by the industries of Saxhsen.

Costs: The sulfuric acid produced by I.G. Farben in the Rhineland costs 1.50 DM less per ton than the acid manufactured in the Eastern Zone. The same applies to sulfuric acid made from pyrites. On the other hand, sulfuric acid made from gypsum at Wolfen is cheaper than the sulfuric acid made from pyrites at Leverkusen. It would cost 4.30 DM per ton (in terms of SO_3), including 1.80 DM for amortization and payment of interest.

Within 10 years, one ton of SO_3 should sell for no more than 2.50 DM, a price which would have been possible at Wolfen in 1948, if the plant had not been dismantled.

Wolfen should thus be able to produce the cheapest sulfur trioxide in Europe. Furthermore, the process would be even more advantageous, because of the production of cement.